This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-12 (canceled)

Claim 13 (original): A method for generating, by a transport network edge device, information about a newly added customer edge device belonging to a virtual private network, to be disseminated to other edge devices of the transport network, the method comprising:

a) obtaining a label base value and a range value associated with the newly added customer edge device;

b) generating at least one message, the at least one message collectively including

i) a first field for identifying the transport network edge device;

ii) a second field for identifying the virtual private network to which the newly added customer edge device belongs;

iii) a third field for identifying the newly added customer edge device;

iv) a fourth field for identifying the range value; and

v) a fifth field for identifying the label base.

Claim 14 (original): The method of claim 13 further comprising:

- defining a set of labels based on the label base value and the range value.

Claim 15 (original): The method of claim 14 wherein the set of labels is contiguous.

Claim 16 (original): The method of claim 13 wherein a value in the third field for identifying the newly added customer edge device is unique within the virtual private network identified in the second field.

Claim 17 (original): The method of claim 13 further comprising:

c) sending the message towards other edge devices of the transport network.

Claim 18 (original): The method of claim 17 wherein the message is sent using a label distribution protocol.

Claim 19 (original): The method of claim 17 wherein the message is sent using a border gateway protocol.

Claim 20 (original): The method of claim 13 wherein the at least one message further includes

vi) a sixth field for defining an encapsulation type used by the newly added customer edge device.

Claim 21 (currently amended): The method of claim 13 wherein the range value of the newly added customer edge device corresponds to a number of elements in a list of channel identifiers provisioned at the newly added customer edge device.

Claim 22 (original): A method for processing, by a first transport network edge device, information about a newly added customer edge device belonging to a virtual private network, the method comprising:

for a second customer edge device, belonging to the virtual private network and attached to the first transport network edge device,

a) determining a first label for getting to a second transport network edge device sourcing the information about the newly added customer edge device,

b) determining a second label for reaching the newly added customer edge device from the second transport network device,

c) determining a third label for data from the newly added customer edge device to reach the second customer edge device from the first transport network edge device,

d) determining a first route mapping an identifier of the newly added customer edge device, used by the second customer edge device, to the first label and the second label, and

e) determining a second route mapping the third label to a channel identifier of the second customer edge device.

Claim 23 (original): The method of claim 22 wherein the information about a newly added customer edge device belonging to a virtual private network includes:

- a first value identifying the second transport network edge device;
- a second value identifying the virtual private network;
- a third value identifying the newly added customer edge device;
- a fourth value identifying a range associated with the newly added customer edge device; and

- a fifth value identifying a label base associated with the newly added customer edge device.

Claim 24 (original): The method of claim 22 wherein the act of determining a first label for getting to the second transport network edge device is based on a label distribution protocol.

Claim 25 (previously presented): The method of claim 24 wherein the label distribution protocol is a protocol selected from a group consisting of (A) resource reservation protocol-traffic extension, (B) label distribution protocol, and constraint-based label distribution protocol.

Claim 26 (original): The method of claim 22 wherein the act of determining a second label for reaching the newly added customer edge device from the second transport network edge device includes determining a function of a label base of the newly added customer edge device and a value derived from an identifier of the second customer edge device.

Claim 27 (original): The method of claim 22 wherein the act of determining a third label for data from the newly added customer edge device to reach the second customer edge device includes determining a function of a label base of the second customer edge device and a value derived from the identifier of the newly added customer edge device.

Claim 28 (currently amended): The method of claim 23 ~~22~~ wherein the range associated with the newly added customer

edge device corresponds to a number of elements in a list of channel identifiers provisioned at the newly added customer edge device.

Claim 29 (original): The method of claim 22 further comprising determining whether an encapsulation type used by the second customer edge device is compatible with that used by the newly added customer edge device.

Claim 30 (original): The method of claim 22 further comprising determining whether any address conflicts exist within the virtual private network based on the second customer edge device and the newly added customer edge device.

Claim 31 (original): The method of claim 22 further comprising determining whether the second customer edge device has sufficient unused channel identifiers to accommodate the newly added customer edge device

Claim 32-34 (canceled)

Claim 35 (currently amended): A device for use at the edge of a layer 2 transport network, the device comprising:

a) a storage facility for storing

i) a first route mapping a channel identifier corresponding to a destination customer edge device to a first label for forwarding data to a proper egress service provider edge device and a second label for forwarding data from the proper egress service provider edge device to the destination customer edge device, and

ii) a second route mapping an ingress second label to a channel identifier associated with a destination customer edge device;

b) a forwarding facility for

i) forwarding ingress data to an egress service provider edge device based on the first route, and

ii) forwarding egress data to a destination customer edge device based on the second route; and

c) a signaling facility for signaling information about a newly added customer edge device coupled with the device, to other devices at the edge of the layer 2 transport network,

~~The device of claim 34 where~~ wherein the information about a newly added customer edge device includes:

- a first value identifying the device;
- a second value identifying a virtual private network to which the newly added customer edge device belongs;
- a third value identifying the newly added customer edge device;
- a fourth value identifying a range associated with the newly added customer edge device; and
- a fifth value identifying a label base associated with the newly added customer edge device.

Claim 36 (original): The device of claim 35 wherein the range associated with the newly added customer edge device corresponds to a number of elements in a list of channel identifiers provisioned at the newly added customer edge device.

Claims 37 and 38 (canceled)

Claim 39 (previously presented): In an edge device of a service provider transport network, a machine-readable medium having stored thereon a data structure, the data structure comprising:

a) a first list of virtual private networks supported by the service provider transport network;

b) for each of the virtual private networks of the list, a second list of customer edge devices belonging to the virtual private network;

c) for each of the customer edge devices of the second list,

i) a first field for storing a label base, and

ii) a second field for storing a label range.

Claim 40 (original): The machine-readable medium of claim 39 further comprising a third field for storing an encapsulation type for each of the customer edge devices of the second list.

Claim 41 (original): The machine-readable medium of claim 39 wherein the range corresponds to a number of elements in a list of channel identifiers provisioned at the customer edge device.

Claim 42 (original): In an edge device of a service provider transport network, a machine-readable medium having stored thereon a data structure, the data structure comprising:

a) a first list of virtual private networks supported by the service provider transport network;

b) for each of the virtual private networks of the list, a second list of customer edge devices belonging to the virtual private network;

c) for each of the customer edge devices of the second list, a third list of channel identifiers.

Claim 43 (original): The machine-readable medium of claim 42 further comprising:

d) for each of the channel identifiers of the third list,

i) first route mapping a channel identifier to a first label for forwarding ingress data to a proper egress service provider edge device and a second label for forwarding ingress data from the proper egress service provider edge device to a destination customer edge device, and

ii) a second route mapping a second label of egress data to a channel identifier associated with a destination customer edge device.

Claim 44 (previously presented): A machine-readable medium having stored thereon a message data structure, the message data structure comprising:

a) a first field identifying a transport network edge device which sourced the message data structure;

b) a second field identifying a virtual private network to which a given customer edge device, connected with the transport network edge device, belongs;

c) a third field identifying the given customer edge device;

d) a fourth field identifying a label range associated with the given customer edge device; and

e) a fifth field identifying a label base associated with the given customer edge device.

Claim 45 (original): The machine-readable medium of claim 44 wherein the message data structure is used to advertise information about the given customer edge device to other edge devices of a layer-2 transport network.

Claim 46 (original): The machine-readable medium of claim 44 wherein the range associated with the given customer edge device corresponds to a number of elements in a list of channel identifiers provisioned at the given customer edge device.

Claims 47 and 48 (canceled)